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*May 3d.*

Vice-President VAUX in the Chair.

Fourteen members present.

Mr. Cassin informed the Academy that our late fellow member, Mr. Samuel Ashmead, had bequeathed to the Academy his entire collection of Algae, together with the privilege of selecting from his mineralogical cabinet such specimens as may be desirable.

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*May 10th.*

Vice-President VAUX in the Chair.

Thirteen members present.

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*May 17th.*

MR. LEA in the Chair.

Twenty-two members present.

A paper was presented for publication entitled "New Unionidæ, Melanidæ, &c., chiefly of the United States." By Isaac Lea.

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*May 24th.*

Vice-President BRIDGES in the Chair.

Eighteen members present.

A paper was presented for publication entitled "Descriptions of new marine Invertebrata from Puget's Sound, &c." By Dr. Wm. Stimpson.

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*May 31st.*

Vice-President VAUX in the Chair.

Sixteen members present.

On Report of the respective Committees, the paper of Mr. Lea, read May 17th, was ordered to be published in the Journal, and the following papers in the Proceedings:

**Critical Remarks on the Genera SEBASTES and SEBASTODES of Ayres.**

BY THEODORE GILL.

In the Proceedings of the California Academy of Natural Sciences, "Remarks in relation to the Fishes of California, which are included in Cuvier's genus *Sebastes*," and subsequently, in the Proceedings of the Zoological Society of London, "Notes on the Sebastoid Fishes occurring on the coast of California, U. S. A.,"\* have been published by Wm. O. Ayres, M. D., C. M. Z. S.

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\* I have been favored by Prof. Baird with the advance sheets of these Proceedings.

The object of these memoirs is to show that there are eleven species of Sebastoid fishes in the Californian waters, distributable among two genera, distinguished *only* by the prominence or little development of spinous ridges on "the top of the head." For those with ridges he reserves the name *Sebastes*; for those with "little developed" ones, he accepts the name *Sebastodes*, proposed for a natural genus of which *S. paucispinis* is the only known species.

Rehearsing the history of *Sebastodes*, Dr. Ayres admits that the "grouping of characters" assigned to it "belongs only to the single species *S. paucispinis*;" and also in his final paper, that "the 'minute scales' belong only to *S. paucispinis*,"\* and then proceeds to show that species of other genera have some of the characters attributed to it! He finally dismisses *Sebastodes* immediately after the remark that "the 'minute scales' belong only to *S. paucispinis*," with the conclusion that "it does not seem possible, therefore, (!!) that *Sebastodes* can be retained with such limits as were assigned to it by Mr. Gill"! The logical character of the inference is rather dubious, after the admission of the truth of a principal proposition. But for the benefit of Dr. Ayres, who may doubt the value of the character, the opinion of Dr. Günther, whose authority he will scarcely gainsay, is adduced. That gentleman attributes to *Sebastes* "scales of moderate or small size," and not minute ones like those of *S. paucispinis*, which, although admitted in the genus by him, he had never seen. Günther has, however, shown his appreciation of the value of the size of the scales in all his diagnoses of the Scorpenoidæ, and has separated the Triglæ of Europe into two genera solely on account of the size of the scales. Therefore the single character admitted by Ayres as peculiar to *Sebastodes paucispinis* would alone, in the opinion of some, entirely separate it from his other species, but when it is stated that it also differs remarkably in the form of the head, the skull, the preoperculum, the connection of the vomer and palatine bones, the direction of the anterior teeth of the jaws, the palatine rows, &c., the unnatural character of the association in one genus of it and species of the ordinary Sebastoid form will be obvious. *Sebastodes paucispinis* is decidedly the only known species of the genus.

Dr. Ayres "refers without hesitation to the genus of which the common species of Massachusetts Bay, *S. viviparus*,† is a member," the species of *Sebastoids* with the frontal and coronal spines moderately or extremely developed, stating that the difference in the number of dorsal spines, when "unsupported, does not appear sufficient." In this respect also he differs widely from Günther: that author distinguishes *Sebastes* by the number of spines,‡ assigning to it twelve or thirteen, and emphatically insists upon its value in his remarks on the *Centropogon australis*,—a species with fifteen spines,—remarking, that "this species approaches in general habit the genera *Sebastes* and *Scorpena*, from which it must be separated on account of the number of the dorsal spines,—a much more certain generic character than the presence or absence of a preorbital spine, which is found in fishes that cannot be separated from *Sebastes* (*S. nematophthalmus*.)"§ Dr. Ayres will doubtless admit the justness of the denial of the pertinence of any Californian species to the same genus as *Sebastes* with fifteen dorsal spines, when acquainted with this emphatic endorsement of the value of the number of dorsal spines and the depreciation of the importance of the cephalic spines. It is true that Dr. Günther admits, as the first two species of *Sebastes*, *S. norvegicus*

\* Dr. Ayres has in his first article insisted that "the little 'accessory scales' mentioned by Girard are not confined to the three species stated by him, but are common to all;" but in his final paper, he has admitted the truth of Girard's and my own descriptions.

† Dr. Ayres has omitted to state that I was responsible for the identification of the Massachusetts *Sebastes* with *S. viviparus*, and that his knowledge of that identity was solely derived from me.

‡ "One dorsal, separated by a notch in a spinous and soft portion, with twelve or thirteen spines."—*Gthr.*, ii. 95.

§ Günther, ii. 129.

and *S. viviparus*, which have "fifteen" dorsal spines, and which are indeed the types of the genus, but that gentleman has shown his appreciation of the value of the character, and has only been unhappy in its application: he should have given a new name to the genus defined by him. Dr. Ayres has omitted to inform his readers that the difference in the number of dorsal spines is also supported by a corresponding difference in the number of vertebræ, the species of "*Sebastichthys*" having, as far as known, only ten abdominal and fourteen caudal vertebræ,\* while *Sebastes* has about twelve abdominal and nineteen caudal vertebræ.†

The value of the characters used to distinguish the genera *Sebastes*, *Sebastichthys* and *Sebastodes* is now indeed so generally conceded by scientific men, that it is unnecessary to further argue in their favor. I shall only remark that the combinations and distinctions of forms by Dr. Ayres are alike unnatural and violate all natural affinities, and that the distinctions used by him to separate his genera *Sebastes* and *Sebastodes* are only of secondary value. More acquaintance with the species of the family would undoubtedly convince him of the justness of this assertion.

Dr. Ayres has been unfortunate in at least one of his identifications, connecting Girard's name *Sebastes rosaceus* with a species of "*Sebastodes*," with the remark that "this is the species originally described by Girard under the name *rosaceus* ; and again, quite correctly, in the tenth volume of the 'Pacific Railroad Reports.' " Yet *S. rosaceus* is said to have "the upper surface of the head with horizontal and acute ridges," and is figured with such armature as well as with the second, instead of the third, anal spine longest, the pectoral and ventrals ceasing before the vent, &c. ! Girard's *Sebastes rosaceus* is indeed a typical *Sebastes* of Ayres, and entirely identical with the *S. helvomaculatus* of the latter, as the examination of the two specimens known to Girard has convinced me. The specimens are in poor condition, but the spots are still visible. The *Sebastodes rosaceus* of Ayres is therefore deprived of a name, and may receive that of *Sebastosomus*‡ *pinniger*.

It is also proper to here remark that two species are apparently confounded by Girard under the name *Sebastes melanops*, one with "a small spine upon the suprascapular bone, two others upon the edge of the opercle," and another from Cape Flattery with the lower opercular spine as well as the supraorbital ridges obsolete, and the forehead between the eyes perfectly arched. The latter may be named *Sebastosomus simulans*.

In conclusion, the genus *Sebastichthys* includes at least three genera. The *Sebastichthys nigrocinctus* is somewhat related to *Scorpena*, and distinguished by elevated, serrated coronal crests. Other Californian species represented by the *Sebastes melanops*, seen by me, differ so much that they may be separated and combined for the present under a genus *Sebastosomus*, of which the *Sebastes melanops* of Girard may be taken as the type. Still others, distinguished by the texture of the bones of the skull, armed orbital ridges, prefrontals, &c., and represented by *Sebastes rosaceus*, Grd., may be named *Sebastomus*. In a contemplated Monograph of the Scorpenoids of California, the relations of the species will be more fully discussed.

#### Second Contribution to the SELACHOLOGY of California.

BY THEODORE GILL.

Since the publication of the article "On the Classification of the Families and Genera of the Squali of California,"§ additional information has been

\* Gill, Proceed. Acad. Nat. Sci., Phila., 1862, p. 278.

† The increase in the number of vertebræ in the species of *Sebastes*, a genus peculiar to the Northern Seas, affords an excellent example of the truth of the generalization claiming an increased number of vertebræ for the cold-water representatives of the families of Acanthopterygians.

‡ *Sebastosomus*, Gill. Type *Sebastes melanops*, Girard.

§ Proc. Acad. Nat. Sciences, Phila., 1862, pp. 483-501.